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10/726,002	12/01/2003	Zhen Liu	YOR920030522US1	5240

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EXAMINER

GILLIS, BRIAN J

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2441

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/726,002	Applicant(s) LIU ET AL.	
	Examiner Brian J. Gillis	Art Unit 2441	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 12-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 12-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yanosy (US PG PUB US2003/0217128) in view of Chau et al (US Patent #5,764,750) in view of T V et al (US PG PUB US2004/020462).

Claim 1 discloses a method of providing communication support resources at a middleware level; indexing the application server resources in a network aware and application aware manner to reflect positions of the application server resources in an application space; indexing a plurality of users to reflect communication interests of the plurality of users in the application space; and forming a communication overlay tree

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that provides communication links between the application server resources and the plurality of users, via the middleware level, the communication overlay tree comprising a first set of one or more nodes representing the application server resources, a second set of one or more nodes representing the plurality of users, a third set of one or more nodes representing middleware residing at the middleware level, and a fourth set of one or more nodes for clustering said one or more nodes representing the application server resources into a first set of one or more groups and for clustering the one or more nodes representing the plurality of users into a second set of one or more groups different from the first set of one or more groups, such that communications from said first set of one or more groups or from said second set of one or more groups are routed via a single one of the communication links to one of the one or more nodes representing middleware. Yanosy teaches a middleware application has a quality of service knowledgebase which stores information of application requirements and network capabilities (figure 2, paragraphs 16 and 18), indexing applications and their requirements (figure 2, reference #44), the quality of service middleware provides mediation services between the application resources and the hosts (figure 5, figure 6, paragraph 32). It fails to teach the communication overlay tree comprising a first set of one or more nodes representing the application server resources, a second set of one or more nodes representing the plurality of users, a third set of one or more nodes representing middleware residing at the middleware level, and a fourth set of one or more nodes for clustering said one or more nodes representing the application server resources into a first set of one or more groups and for clustering the one or more

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nodes representing the plurality of users into a second set of one or more groups different from the first set of one or more groups, such that communications from said first set of one or more groups or from said second set of one or more groups are routed via a single one of the communication links to one of the one or more nodes representing middleware. Chau et al teaches providing an overlay including nodes representing server resources, plurality of users or parties, a middleware level and clustering nodes together to use a communication link (Figure 21, and column 19, line 12 – column 20, line 17).

Yanosy and Chau et al are analogous art because they are both related to establishing compatible sessions.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the overlay feature in Chau et al with the system in Yanosy because the provisioning of multiparty distributed communications in heterogeneous environments is provided (Chau, column 19, lines 13-20).

Yanosy in view of Chau et al teaches the limitations as recited above. It fails to teach clustering said one or more nodes representing the application server resources into a first set of one or more groups and for clustering the one or more nodes representing the plurality of users into a second set of one or more groups different from the first set of one or more groups, such that communications from said first set of one or more groups or from said second set of one or more groups are routed via a single one of the communication links to one of the one or more nodes representing middleware. T V et al teaches clients are clustered together and message producers or

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application components are clustered together and a middleware level node handles communications between the clusters (Figure 2 and paragraphs 20-22).

Yanosy in view of Chau et al and T V et al are analogous art because they are both related to transmitting by compatible communication sessions.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the clustered nodes in T V et al with the system in Yanosy in view of Chau et al because messaging communication is able to be distributed by using middleware (T V, paragraph 21).

Claims 12-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanosy (US PG PUB US2003/0217128) in view of Garcia et al (US PG PUB US2003/010278) in view of Chau et al (US Patent #5,764,750) in view of T V et al (US PG PUB US2004/020462).

Claim 12 discloses a method of virtualizing network resources to support collaborative communications in a network having application servers and users that have communication interests, the method comprising the steps of: constructing a scalable network map; indexing the application servers according to positions of the applications servers in the network; indexing the users according to communication interests of the users; generating a communication overlay tree based on the indexing of the application servers, on the indexing of the users, and on the scalable network map, the communication overlay tree comprising a first set of one or more nodes representing the application servers, a second set of one or more nodes representing the users, and a third set of one or more nodes for clustering said one or more nodes

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representing application servers into a first set of one or more groups and for clustering the one or more nodes representing the users into a second set of one or more groups different from the first set of one or more groups, such that communications between said first set of one or more groups and said second set of one or more groups are routed via communication links; and supporting communications between the application servers and the users over the communication overlay tree. Yanosy teaches the quality of service middleware provides mediation services between the application resources and the hosts (figure 5, figure 6, and paragraph 32). It fails to teach constructing a scalable network map; indexing application servers according to their position in the network; indexing users according to their communication interest, the communication overlay tree comprising a first set of one or more nodes representing the application servers, a second set of one or more nodes representing the users, and a third set of one or more nodes for clustering said one or more nodes representing application servers into a first set of one or more groups and for clustering the one or more nodes representing the users into a second set of one or more groups different from the first set of one or more groups, such that communications between said first set of one or more groups and said second set of one or more groups are routed via communication links; and supporting communications between the application servers and the users over the communication overlay tree, and supporting communications between application servers and users over the communication overlay tree. Garcia et al teaches a map is created (paragraph 52), servers are mapped based on their

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distance and load (paragraph 52), clients are mapped (paragraph 72), and users are mapped to servers based on the distance and server load (paragraph 52 and 53).

Yanosy and Garcia et al are analogous art because they are both related to distributing resources.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the mapping feature in Garcia et al with the system in Yanosy because the best server for servicing a request is able to be determined (Garcia, paragraph 47).

Yanosy in view of Garcia et al teaches the limitations as recited above. It fails to teach the communication overlay tree comprising a first set of one or more nodes representing the application servers, a second set of one or more nodes representing the users, and a third set of one or more nodes for clustering said one or more nodes representing application servers into a first set of one or more groups and for clustering the one or more nodes representing the users into a second set of one or more groups different from the first set of one or more groups, such that communications between said first set of one or more groups and said second set of one or more groups are routed via communication links; and supporting communications between the application servers and the users over the communication overlay tree. Chau et al teaches providing an overlay including nodes representing server resources, plurality of users or parties, and clustering the server resources and users together to use a communication link (Figure 21, and column 19, line 12 – column 20, line 17).

Yanosy in view of Garcia et al and Chau et al are analogous art because they are both related to establishing compatible sessions.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the overlay feature in Chau et al with the system in Yanosy because the provisioning of multiparty distributed communications in heterogeneous environments is provided (Chau, column 19, lines 13-20).

Yanosy in view of Garcia et al in view of Chau et al teaches the limitations as recited above. It fails to teach clustering the one or more nodes representing the users into a second set of one or more groups different from the first set of one or more groups, such that communications between said first set of one or more groups and said second set of one or more groups are routed via communication links. T V et al teaches clients are clustered together and message producers or application components are clustered together and a middleware level node handles communications between the clusters (Figure 2 and paragraphs 20-22).

Yanosy in view of Garcia et al in view of Chau et al and T V et al are analogous art because they are both related to transmitting by compatible communication sessions.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the clustered nodes in T V et al with the system in Yanosy in view of Garcia et al in view of Chau et al because messaging communication is able to be distributed by using middleware (T V, paragraph 21).

Claim 13 discloses the method of claim 12 wherein the scalable network map is further based on supporting service level agreements. Yanosy further teaches mapping is based on quality of service requirements (paragraph 31).

Claim 14 discloses the method of claim 12 wherein supporting communications includes operating according to middleware software. Yanosy further teaches middleware negotiates between the application and the host (paragraph 30).

Claim 15 discloses the method of claim 12 wherein generating a communication overlay tree is repeated upon changes to the network. Garcia et al further teaches updates are made based on network changes (paragraph 53).

Claim 16 discloses the method of claim 12 wherein indexing users includes indexing a new user to the network. Garcia et al further teaches a map is updated when changes occur (paragraph 53).

Claim 17 discloses the method of claim 12 wherein an application server is indexed if it enters the network. Garcia et al further teaches a map is updated when changes occur (paragraph 53).

Claim 18 discloses a method of operating a communication network, comprising the steps of: identifying a plurality of network resources and network constraints of the plurality of network resources; identifying a plurality of application servers that are controlled by an application having an application space; identifying a plurality of users and a communication interest in the application space of each of said plurality of users; and indexing the plurality of application servers to reflect positions of the plurality of application servers in an attribute space; indexing said plurality of users according to

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identified communication interests; forming a user index identifier for each of said plurality of users; and establishing a communication overlay tree between the plurality of application servers and the plurality of users based on the network constraints and on the plurality of users as indexed, the communication overlay tree providing communication links between the plurality of application servers and the plurality of users, the communication overlay tree comprising a first set of one or more nodes representing the plurality of application servers, a second set of one or more nodes representing the plurality of users, and a third set of one or more nodes for clustering said one or more nodes representing the plurality of application servers into a first set of one or more groups and for clustering the one or more nodes representing the plurality of users into a second set of one or more groups different from the first set of one or more groups, such that communications between said first set of one or more groups and said second set of one or more groups are routed via the communication links.

Yanosy teaches multiple applications each have quality of service requirements (figure 1, figure 2 reference #44, and paragraph 17), the applications are identified in the application knowledge base (figure 2 reference #44), and users are indexed and stored (figure 2 reference #44) and the quality of service middleware provides mediation services between the application resources and the hosts (figure 5, figure 6, paragraph 32). It fails to teach identifying a plurality of users and a communication interest in the application space of each of said plurality of users; and indexing the plurality of application servers to reflect positions of the plurality of application servers in an attribute space; indexing said plurality of users according to identified communication

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interests; and establishing a communication overlay tree between the plurality of application servers and the plurality of users based on the network constraints and on the plurality of users as indexed, the communication overlay tree comprising a first set of one or more nodes representing the plurality of application servers, a second set of one or more nodes representing the plurality of users, and a third set of one or more nodes for clustering said one or more nodes representing the plurality of application servers into a first set of one or more groups and for clustering the one or more nodes representing the plurality of users into a second set of one or more groups different from the first set of one or more groups, such that communications between said first set of one or more groups and said second set of one or more groups are routed via the communication links. Garcia et al teaches clients and servers are mapped (paragraph 52), the servers are mapped based on position (paragraph 52 and 53), the clients are mapped to the servers according to criteria (paragraph 52), and the mapping provides servers to clients based on distance and server load (paragraphs 52 and 53).

Yanosy and Garcia et al are analogous art because they are both related to distributing resources.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the mapping feature in Garcia et al with the system in Yanosy because the best server for servicing a request is able to be determined (Garcia, paragraph 47).

Yanosy in view of Garcia et al teaches the limitations as recited above. It fails to teach the communication overlay tree comprising a first set of one or more nodes

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representing the plurality of application servers, a second set of one or more nodes representing the plurality of users, and a third set of one or more nodes for clustering said one or more nodes representing the plurality of application servers into a first set of one or more groups and for clustering the one or more nodes representing the plurality of users into a second set of one or more groups different from the first set of one or more groups, such that communications between said first set of one or more groups and said second set of one or more groups are routed via the communication links. Chau et al teaches providing an overlay including nodes representing server resources, plurality of users or parties, and clustering the server resources and users together to use a communication link (Figure 21, and column 19, line 12 – column 20, line 17).

Yanosy in view of Garcia et al and Chau et al are analogous art because they are both related to establishing compatible sessions.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the overlay feature in Chau et al with the system in Yanosy because the provisioning of multiparty distributed communications in heterogeneous environments is provided (Chau, column 19, lines 13-20).

Yanosy in view of Garcia et al in view of Chau et al teaches the limitations as recited above. It fails to teach clustering the one or more nodes representing the users into a second set of one or more groups different from the first set of one or more groups, such that communications between said first set of one or more groups and said second set of one or more groups are routed via communication links. T V et al teaches clients are clustered together and message producers or application

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components are clustered together and a middleware level node handles communications between the clusters (Figure 2 and paragraphs 20-22).

Yanosy in view of Garcia et al in view of Chau et al and T V et al are analogous art because they are both related to transmitting by compatible communication sessions.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the clustered nodes in T V et al with the system in Yanosy in view of Garcia et al in view of Chau et al because messaging communication is able to be distributed by using middleware (T V, paragraph 21).

Claim 19 discloses the method of claim 18, further including indexing network locations of each user of said plurality of users. Garcia et al further teaches maintaining an index of client addresses (paragraph 72).

Claim 20 discloses the method of claim 19, further including providing an application with the user index identifier for each of said plurality of users via one of the plurality of application servers. Yanosy further teaches the middleware communicates between the application and the host platform (paragraph 32).

Claim 21 discloses the method of claim 20, further including sending data from via one of the plurality of application servers to at least one user of said plurality of users based on the communication interest of the at least one user and on the user index identifier of the at least one user. Yanosy further teaches the application notifies the middleware of a request and the middleware sends the data between the appropriate clients and servers (paragraph 29).

Claim 22 discloses the method of claim 18 wherein indexing of the plurality of users includes indexing new users to the communication network. Garcia et al further teaches a map is updated when changes occur (paragraph 53).

Claim 23 discloses the method of claim 18 wherein establishing the communication overlay tree is at least partially based on round trip travel times. Yanosy further teaches mapping is based on quality of service requirements (paragraph 31).

Response to Arguments

Applicant's arguments with respect to claims 1, 12, and 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Gillis whose telephone number is (571)272-7952. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on 571-272-3880. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian J Gillis
Examiner
Art Unit 2441

/B. J. G./
Examiner, Art Unit 2441
12/22/2008

/Larry D Donaghue/
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